

## Troubleshooting

**If water flows slowly, the filter seems clogged, or the pump stroke feels different than normal and:**

### Handle Is Hard to Push

- Clean the Marathon Ceramic with the Pad (See "Marathon Cartridge").
- Lubricate dry Piston O-Ring (See "Piston O-Ring").

### Handle Feels Limp / No Resistance When Pumping

- Clean under the Umbrella Valve. If debris is under the Valve, the Inlet Foam is not effectively installed. Clean and reinstall the Inlet Foam. Replace the Umbrella Valve if it is torn or damaged. <sup>(1)</sup>
- Missing Inlet Valve Ball (in the Relief Valve Assembly). <sup>(1)</sup>
- Hole in the Inlet Hose. Remove damaged section or replace it. <sup>(1)</sup>
- Damaged Inlet Barb O-Ring. Order a replacement O-Ring from MSR.

### Handle Is Hard to Pull

- Clean the Inlet Foam (See "Inlet Foam"). To prevent clogging, keep the Hose above the bottom sediments using the Inlet Float.
- Make sure the Inlet Hose is not kinked or blocked.

### Squeaky / Noisy When Pumping

- The Relief Valve is blowing due to filter clogging (See "Marathon Cartridge") or pumping too fast. Pump the Handle no faster than 1 stroke per second.

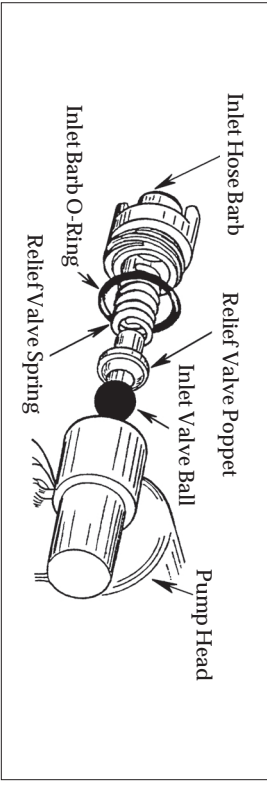
### Pump stroke is normal, but water flows slowly

- Pumping too fast. Pump no faster than 1 stroke per second. Pumping too quickly increases the number of pump strokes without increasing water flow because the Relief Valve reverses the water back out the Inlet Hose.
- Air bubble in the Pump Head. To remove the air, turn the filter upside down while keeping the Hose under water. Pump the Handle 3 - 5 strokes until the air is purged, then return the filter upright for regular pumping. To prevent air from entering, keep the Inlet Cage under water. Air in the Pump Head may also be caused by debris in the Valves (See "Umbrella Valve" and "Relief Valve Assembly").

<sup>(1)</sup> Replacement parts are in the WaterWorks & MiniWorks Maintenance Kit, Marathon Replacement Kit, and the Inlet Hose Kit. If you need help maintaining your filter, troubleshooting problems, or replacing parts, contact your nearest MSR retail dealer or MSR Customer Service.

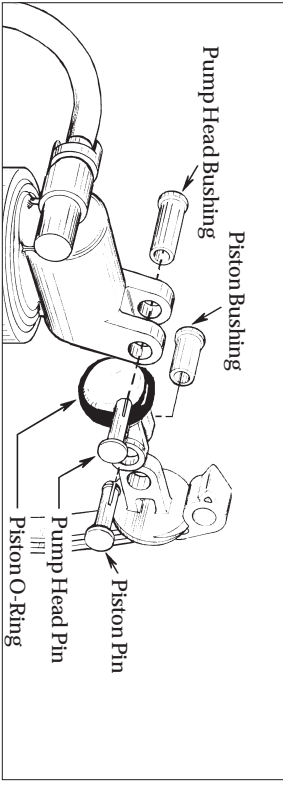
## Relief Valve Assembly

If the Handle feels limp on the push stroke, debris may be caught in the Relief Valve or the Inlet Valve Ball is missing. Unscrew the Inlet Hose Barb from the Pump Head. Rinse the Relief Valve Poppet, Spring and Ball. Reassemble.



## Piston O-Ring

If the Handle drags when pumping, lubricate the Piston O-Ring. Pull out the Pump Head Pin and Bushing, then remove the Handle. Put a light film of food-grade lubricant (MSR Silicone Lubricant, lip balm or petroleum jelly) on the Piston O-Ring. Reassemble. If water leaks from the Piston seal, replace the O-Ring.



## Killing Viruses

Viruses need enough contact time with iodine to be effective. It is difficult to achieve this contact time with the fast flow rates that many portable water filters offer. To kill viruses, MSR recommends pretreating the water with iodine (follow manufacturer's instructions), then filter the treated water through the MiniWorks. The carbon core of the Marathon Cartridge will remove the iodine taste and odor.

## Limited Warranty

The MiniWorks has a three year limited warranty. Should this product fail during the three year warranty period, return it to one of our authorized repair facilities. We will repair it or replace it at our option, free of charge. Repairs due to improper use or care, negligence, product modification, or accident are not covered under this warranty agreement, but will be performed at a nominal charge on request.

This warranty applies only to the original purchaser. Proof of purchase is required. Products purchased from an independent dealer should be returned to the dealer for forwarding to MSR. Shipping cost to MSR is the responsibility of the purchaser. Return postage will be paid by MSR.

EXCEPT AS PROVIDED HEREIN, MSR MAKES NO WARRANTIES, EXPRESS OR IMPLIED INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. MSR SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.

This warranty gives you specific legal rights. You may also have other rights which vary state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation or exclusion of implied warranties, so the above exclusion and limitation may not apply to you.

### Patented

Germany: Patent No. M9008212	South Korea: Design Patent No. 126697
Taiwan: Patent No. ND-28287	United States: Patent No. D3921,550 / 5,206,196 / 5,330,640
Australia: Design Patent No. 114171	United States: Patent No. 5,487,833 / 5,558,762 / 5,656,220
Japan: Registered Design No. 895427	United Kingdom: GB Reg. Design No. 2011749
Other Patents Pending	

# MSR® MiniWorks™ Water Filter



The MSR MiniWorks removes protozoa (including Giardia), bacteria, some chemicals and many pesticides. MSR's Marathon ceramic offers extended longevity and quick, easy cleaning, making the MiniWorks effective, long lasting and easy to use.

**Read and follow all instructions and warnings in this manual before using the MiniWorks. (Version 1.2)**

⚠Warnings

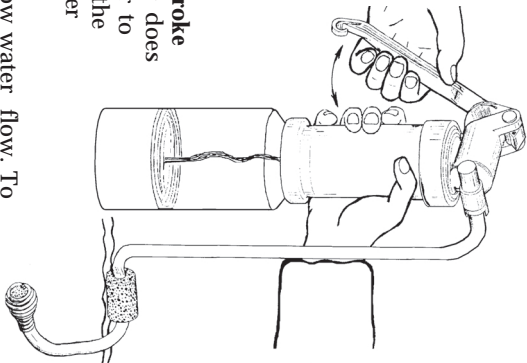
The MiniWorks does not make salt water drinkable, does not remove all viruses (viruses not attached to .3 micron or larger particles), some chemicals and radioactive materials, or particles smaller than .3 microns.

Keep the Inlet Hose and other dirty water parts away from filtered water containers to prevent contaminating filtered water.

Do not expose any part of the MiniWorks to chemicals other than as directed by MSR in these instructions. Do not use this product in any way other than expressed in the instructions or specifically authorized in writing by MSR. Use only parts supplied by MSR.

Using the MiniWorks

- 1) Unscrew the Clean Side Cover from the bottom of the filter.
- 2) Screw an MSR Dromedary™ Bag or wide mouth Nalgene® bottle onto the bottom of the filter for easy two-handed operation. Otherwise, place a clean container under the filter.
- 3) Put the Inlet Cage under water. Adjust the Float to keep the Cage above bottom sediments and below surface debris.
- 4) Pump the Handle no faster than **1 stroke per second**. Although pumping faster does not alter effectiveness, it causes water to reverse through the Hose increasing the pump strokes without increasing water flow. Pump at 1 stroke per second.
- 5) Air trapped in the Pump Head will slow water flow. To remove the air, turn the filter upside down while keeping the Hose under water. Pump the Handle 3 - 5 strokes until the air is purged, then return the filter upright for regular pumping.
- 6) After filtering, remove the Inlet Hose from water and pump the Handle to purge any remaining water. Screw the Clean Side Cover onto the bottom of the filter.



Storing the MiniWorks

Air dry the Marathon Cartridge to keep it in good operating condition for your next use and to prevent organisms from growing:

- Unscrew the Pump Head. Push the Marathon Cartridge up through the Housing. Air-dry the Marathon Cartridge at room temperature (3 - 5 days). Wash and rinse other filter parts in clean water and dry thoroughly before long-term storage.
- Another option is to sterilize the Marathon Cartridge. Remove the End Cap O-Rings. Place the Marathon Cartridge in a pot of boiling water for 5 minutes. Remove when the water is cool. Do not handle the Cartridge when it's hot or the critical Lower End Cap seal may be lost. Do not boil any other filter parts. Air dry Cartridge 3 - 5 days before storing.

When Do I Clean the Marathon Cartridge?

- If little or no water flows when pumping. Clean if it takes more than 2" - 3 minutes or 125 - 150 strokes to filter a liter of water.
- If the Relief Valve "blows" when pumping, which reverses the dirty water back through the Inlet Hose.

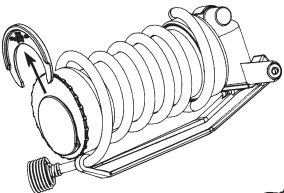
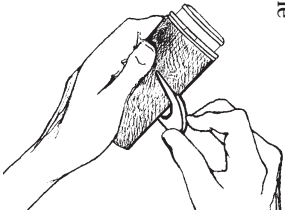
Cleaning the Filter Elements  
Marathon Cartridge

To clean the Marathon Cartridge, unscrew the Pump Head. Push the Marathon up through the Housing. Brush the Marathon Cartridge with the Scrubbing Pad while rinsing it with clean water. Reassemble. Make sure that the Upper and Lower End Cap O-Rings are installed on the Marathon Cartridge.



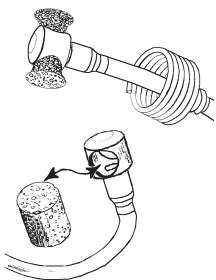
Replacing the Marathon Cartridge

Pull the Gauge out from the Clean Side Cover. If the Gauge slides easily over the Marathon Cartridge, then it's time to replace it. You should get about 15 - 22 cleanings from the Marathon. If you get less than that, don't scrub the surface as hard. Another option is to use a less abrasive material, such as a soft cloth, every other cleaning. Using a less abrasive material will give less recovery than the Scrubbing Pad. If you do not get better flow after using an alternative material, you must use the Scrubbing Pad to abrade the Marathon's surface.



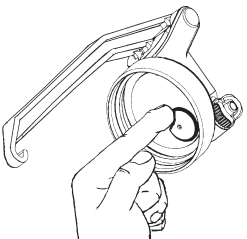
Inlet Foam

If the Handle is hard to pull or debris enters the Relief Valve or Umbrella Valve, clean the Inlet Foam. Slide the Cage up the Hose. Remove the Foam and rinse it like a sponge, then reinstall it through the Funnel.



Pump Head Maintenance  
Umbrella Valve

If the Handle feels limp on the pull stroke or air enters the Pump Head, clean under the Umbrella Valve. Unscrew the Pump Head and rinse thoroughly under the Valve. Replace it if torn or damaged.



Tips & Suggestions

- Always filter the clearest water available. Avoid filtering cloudy or muddy water (visibility less than 1 foot), which can reduce the life of the Marathon Cartridge. Very silty, cloudy water will clog the filter much faster than clear water. The fact that your filter clogs means it's effectively removing particles from the water - the purpose of carrying a water filter. Remember that clogging depends on water quality, not how long you have used the filter.
- Let particles settle before filtering, especially when filtering poor quality water. Fill a container with water and let it stand 1 - 2 minutes or as long as possible. Filter mid-container then discard bottom sediments.
- Keep the Inlet Foam above bottom sediments by adjusting the Float at the end of the Hose.
- On longer trips, filter well or spring water when possible and bring along extra Marshalls and a Maintenance Kit.
- Air dry the Marathon Cartridge before storing to keep it in good operating condition for your next use.
- After screwing the Pump Head onto the Housing, back it off slightly (about 1/8 of a turn) to make it easier to remove later.
- Lubricate the Piston O-Ring and Housing O-Ring regularly with a very light film of food-grade lubricant (MSR Silicone Lubricant, lip balm or petroleum jelly). Do not lubricate the Valves or plastic threads, since lubricant attracts dirt.

